

REMARKS

Reconsideration and allowance of the present application on the following remarks are respectfully requested. Claims 1-3 and 6-46, and 48-53 are pending in the present application. Claim 20 has been amended.

Claims 5 and 12 were objected to as being dependent upon a rejected base claim, but would be allowable if written in independent form including all of the limitations of the base claim and any intervening claims. Applicant believes this may have been in error, as claim 5 was canceled by the Amendment filed May 15, 2006, and claim 12 does not concern a “port identification for the photo device.” Furthermore, the Examiner included claim 12 in the rejections discussed below.

Claims 1-3, 6-46 and 48-53 were rejected under 35 U.S.C. § 103(a) as being obvious over United States Patent No. 7,092,069 to Schuster (“Schuster”) either alone or in view of United States Patent Application Publication No. 2006/0050414 to Harchanko (“Harchanko”). Applicant respectfully traverses these rejections for at least the following reasons.

Applicant submits Schuster is unavailable as prior art. Schuster was filed July 9, 2004 and first published on February 10, 2005, while the present application was filed November 24, 2003. Therefore, Applicant respectfully requests that any and all rejections based on Schuster should be withdrawn. If the Examiner maintains these rejections relying on Schuster, Applicant requests the Examiner to provide a detailed explanation as to how any of the priority applications of Schuster may be used as prior art and furthermore support the cited portions of Schuster or otherwise support rejection of the claims.

Applicant has taken a brief look at the priority applications of Schuster. United States Patent Application No. 10/210,051, now United States Patent No. 6,878,916, does not provide any figure(s) corresponding to Figure 2 of Schuster cited by the Examiner. Similarly, the International Patent Application No. PCT/EP02/04846, which published as International Published Patent Application No. WO 03/077036 on September 18, 2003 in the German language, does not provide any figure(s) corresponding to Figure 2 of Schuster, either.

Even assuming *arguendo* that Schuster is prior art, Schuster, as admitted by the Examiner, only discloses “the basic lithographic apparatus, but does not disclose how the immersion lens 14 is mounted to the support.” Therefore, Applicant submits that the cited portions of Schuster fail to disclose, teach or suggest a lithographic apparatus comprising, *inter alia*: “a joint between an element of the projection system and its support comprises an

inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and comprises glue protection” as recited by independent claim 1; “a fluid tight joint between an element of the projection system and its support comprises a direct bond” as recited by independent claim 20; “a fluid tight seal between the lens and the lens support wherein the seal was made without heating” as recited by independent claim 38; nor “a direct bond providing a fluid tight seal between the lens and the lens support” as recited by independent claim 42. Similarly, the cited portions of Schuster fail to disclose, teach or suggest a device manufacturing method comprising, *inter alia*: “joining an element of a projection system, that in use in a lithographic apparatus comes in contact with a liquid, with its support using an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and glue protection, direct bonding, or both” as recited by independent claim 46.

The cited portions of Schuster make no mention as to how the lens is mounted to the support. Indeed, the cited portions of Schuster fail to discuss any joint element structure or materials.

Further, the cited portions of Harchanko fail to overcome the shortcomings of Schuster. Harchanko discloses embedding a lens or multiple lenses to a mounting substrate, by anodically bonding the lens to the mounting substrate, adhesively attaching the lens to the mounting substrate, or etching the lens directly from the mounting substrate. *See* paragraph [0028] of Harchanko. The cited portions of Harchanko also note “[m]any suitable attachments or bonding methods can be used to embed microlenses into the mounting substrates,” but provide no further details as to what these might be. *See id.*

Accordingly, while Applicant does not concede that Harchanko is analogous art that may be properly applied here (and indeed, Applicant expressly submits that it is not since, for example, a MOEMS is nothing at all similar to a projection system of a lithographic apparatus and thus it is not a reference that “logically would have commended itself to an inventor’s attention in considering his problem.” *See In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992)), Applicant submits that the cited portions of Harchanko fail to disclose, teach or suggest a lithographic apparatus comprising, *inter alia*, “a joint between an element of the projection system and its support comprises an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and comprises glue protection” as recited by independent claim 1 (emphasis added). Similarly, the cited portions of Harchanko fail to disclose, teach or suggest a device manufacturing

method comprising, *inter alia*, “joining an element of a projection system, that in use in a lithographic apparatus comes in contact with a liquid, with its support using an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and glue protection, direct bonding, or both” as recited by independent claim 46 (emphasis added): At best, the cited portions of Harchanko disclose the joint between the lens and the mounting substrate is formed by one of these methods, but not a combination of methods.

Further, the cited portions of Harchanko do not disclose, teach, or suggest a lithographic apparatus comprising, *inter alia*, “a fluid tight joint between an element of the projection system and its support comprises a direct bond” as recited by independent claim 20 (emphasis added); “a fluid tight seal between the lens and the lens support wherein the seal was made without heating” as recited independent claim 38 (emphasis added); nor “a direct bond providing a fluid tight seal between the lens and the lens support” as recited in independent claim 42 (emphasis added). Indeed, the cited portions of Harchanko make no mention of using the lens in, for example, a liquid environment much less the possibility of, for example, liquid entering between the lens and the mounting substrate.

Furthermore, the Examiner states “[o]ne of ordinary skill in the art would be motivated to use the direct bond process [of Harchanko] to mount the immersion lens of the Schuster et al. apparatus.” However, mere conclusionary remarks such as these are impermissible grounds for establishing a *prima facie* case of obviousness.<sup>1</sup> For example, Applicant submits that the Examiner has not established that the prior art suggests the desirability of the combination.

Therefore, Applicant respectfully submits that the Examiner has failed to make a *prima facie* case of obviousness and has not established that the cited portions of Schuster, Harchanko, or any proper combination thereof, disclose, teach or suggest each and every element recited by independent claims 1, 20, 38, 42, and 46. Claims 2-3, 6-19, 21-37, 39-41, 43-45, and 48-53 depend respectively from claims 1, 20, 28, 42 and 46 and are, therefore, patentable for at least the same reasons provided above claims 1, 20, 38, 42 and 46 respectively, and for the additional features recited therein. Thus, Applicant respectfully

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<sup>1</sup> MPEP § 2143.01(IV) (“A statement that modifications of the prior art to meet the claimed invention would have been ‘well within the ordinary skill of the art’ at the time the claimed invention was made’ because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references.”)

requests that the rejections of claims 1-3, 6-46 and 48-53 under § 103(a) over Schuster alone or in view of Harchanko should be withdrawn and the claims be allowed.

Claims 1-3, 6-46 and 48-53 were rejected under 35 U.S.C. § 103(a) as being obvious over Schuster either alone or in view of United States Patent Application Publication No. 2003/0231835 to Do et al. (“Do et al.”). Applicant respectfully traverses these rejections for at least the following reasons.

As discussed above, Applicant submits Schuster is unavailable as prior art. Even assuming *arguendo* that Schuster is prior art, the cited portions of Schuster still fail to disclose, teach, or suggest independent claims 1, 20, 38, 42 and 46, as discussed above.

Further, the cited portions of Do et al. fail to overcome the shortcomings of Schuster. Do et al. disclose a micro optical bench for mounting precision aligned optics. Do et al. further note using an adhesive or solder to bond components to a support. *See* paragraph [0026] of Do et al.

Accordingly, while Applicant does not concede that Do et al. is analogous art that may be properly applied here (and indeed, Applicant expressly submits that it is not since, for example, an optical assembly for a tunable laser is nothing at all similar to a projection system of a lithographic apparatus and thus it is not a reference that “logically would have commended itself to an inventor’s attention in considering his problem.” *See In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992), Applicant submits that the cited portions of Do et al., fail to disclose, teach or suggest a lithographic apparatus comprising, *inter alia*, “a joint between an element of the projection system and its support comprises an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and comprises glue protection” as recited by independent claim 1 (emphasis added). Similarly, the cited portions of Do et al. fail to disclose, teach or suggest a device manufacturing method comprising, *inter alia*, “joining an element of a projection system, that in use in a lithographic apparatus comes in contact with a liquid, with its support using an inorganic layer comprising (i) metal, (ii) ceramic, (iii) glass, or (iv) any combination of (i) – (iii), and glue protection, direct bonding, or both” as recited by independent claim 46 (emphasis added). At best, the cited portions of Do et al. disclose the joint between the lens and the support is formed by one of these methods, but not a combination of methods.

Moreover, the cited portions of Do et al. do not disclose, teach, or suggest a lithographic apparatus comprising, *inter alia*, “a fluid tight joint between an element of the projection system and its support comprises a direct bond” as recited by independent claim 20

(emphasis added); “a direct bond providing a fluid tight seal between the lens and the lens support” as recited in independent claim 42 (emphasis added); nor “a fluid tight seal between the lens and the lens support wherein the seal was made without heating” as recited in independent claim 38 (emphasis added). Indeed, the cited portions of Do et al. make no mention of using the lens in, for example, a liquid environment nor of the possibility of, for example, liquid entering between the lens and the support.

In the Office Action, the Examiner states “[o]ne of ordinary skill in the art would be motivated to use the method taught [by Do et al.] to mount the optical elements of the Schuster et al. apparatus.” However, mere conclusory remarks such as these are impermissible grounds for establishing a *prima facie* case of obviousness.<sup>2</sup> For example, Applicant submits that the Examiner has not established that the prior art suggests the desirability of the combination.

Therefore, Applicant respectfully submits that the Examiner has failed to make a *prima facie case* of obviousness and has not established that the cited portions of Schuster, Do et al., or any proper combination thereof, disclose, teach or suggest each and every element recited by independent claims 1, 20, 38, 42 and 46. Claims 2-3, 6-19, 21-37, 39-41, 43-45, and 48-53 depend respectively from claims 1, 20, 28, 42 and 46 and are, therefore, patentable for at least the same reasons provided above regarding claims 1, 20, 38, 42 and 46 respectively, and for the additional features recited therein. Thus, Applicant respectfully requests that the rejections of claims 1-3, 6-46 and 48-53 under § 103(a) over Schuster in view of Do et al. should be withdrawn and the claims be allowed.

All rejections and objections have been addressed. It is respectfully submitted that the present application is in condition for allowance, and a notice to that effect is earnestly solicited. Should there be any questions or concerns regarding this application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

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<sup>2</sup> See *supra* note 2.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,

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